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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,877	01/29/2004	Akira Egawa	392.1868	2298
21171	7590	04/25/2006	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			VAN ROY, TOD THOMAS	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 04/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/765,877

Applicant(s)

EGAWA ET AL.

Examiner

Tod T. Van Roy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-12 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                                                 |                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                            | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>09/14/2005</u> . | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Drawings***

The drawings were received on 02/28/2006. These drawings are accepted.

### ***Response to Amendment***

The examiner acknowledges the amending of claims 1-5, and the addition of claims 6-12.

### ***Response to Arguments***

Applicant's arguments, see Remarks, filed 02/28/2006, with respect to Claims 1 and 5 have been fully considered and are persuasive. The rejection of the claims has been withdrawn.

The examiner agrees that the rejection of claim 5 using a gas laser system with no magnetic fields present does not make an obvious combination with a gas laser system that is made specifically for use with a magnetic field influence.

The present office action will subsequently be made non-final.

The examiner also notes that the rejection of claim 1 is withdrawn due to the fact that it is unclear whether the device is to be used with a gas laser oscillator or is itself a gas laser oscillator, and not due to the inherency argument.

### ***Claim Objections***

Claim 4 is objected to because of the following informalities:

Claim 4 is objected as it is unclear whether the "discharge current" is meant to refer to that of the current applied to the electrode and lacks antecedent basis, or is

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meant to describe the current applied to the magnetic coils. For the purpose of this office action the meaning has been taken to be that of the current applied to the magnetic coil.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 8 recites the limitation "the coils" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 9 recites the limitation "the electric discharge tube" in line 4. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-4 and 6-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murata et al. (US 5445003).

With respect to claims 1-3, Murata teaches a gas laser oscillator comprising: an electric discharge section (fig.13 #29/30) generating an electric discharge in a gas laser medium for pumping the gas laser medium (col.3 lines 62-65); a power source, connected to said electric discharge section, supplying electric discharge power thereto (fig.13 #9); and a magnetic field applying unit (fig.13 #34, coils around the discharge section) applying a magnetic field to said electric discharge section in a direction different from a direction of the electric discharge (col.6 lines 37-41), as well as the application of either AC or DC current (col.6 lines 42-45) which would allow for the generation of at least 1 lateral mode profile. Murata does not specifically teach the intensity of the current through the coils to be changed, although he does teach the excited coils to replace permanent magnets (cols.4-5 lines 60-2). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the gas laser oscillator and electrical current stimulated magnetic coils with selectable current (well known in the art that variable current/power supplies are better suited for making system adjustments than having to completely replace a fixed current/power supply whenever an input change is called for) stimulated magnetic coils in order to allow for different magnitudes of magnetic fields to be present to have a wider range of control and adaptability of the laser system, which would also inherently allow for the

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generation of a variety of lateral modes in the oscillator system (as the physical limitations of the claimed system are met, as well as the proper inputs, it is inherent that various lateral mode profiles would be present due to varying input conditions).

With respect to claim 4, Murata teaches the gas laser oscillator outlined in the rejection to claim 3 above, and further teaches that the magnetic field applying unit synchronizes the magnetic field with the discharge current (inherent that the magnetic field would be synchronized with the current that is used to generate the field).

With respect to claim 6, Murata teaches the gas laser oscillator as outlined in the rejection to claim 1 above, and further teaches the use of electrodes mounted on either side of the tube (fig.8 #7a/b). Murata does not teach the electrodes to be on opposite sides of the tube and the section to be wrapped with the magnetic coils (fig.13 shows one electrode on the outside of the tube, and the other on the inside, with the coils then wrap around the discharge section). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the clear teaching of the two embodiments of Murata to arrive at combining the wrapped coils with the opposite electrodes as a matter of engineering design choice.

With respect to claims 7-8, Murata teaches a method of operating a gas laser comprising: operation of the gas laser oscillator as found in the rejection of claim 1, and additionally the use of an alternating electric discharge power to the electric discharge section (col.4 lines 6-12).

With respect to claim 9, Murata teaches the method of operating a gas laser oscillator as outlined in the rejection to claim 7, including the maintenance of the

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magnetic field during respective half cycles of the alternating energy (as Murata teaches nothing but an uninterrupted supply of current to be supplied to the coils it is inherent that the magnetic field would be maintained during respective half cycles of the alternating energy), so as to create symmetrical, respective electric discharges which spread to corresponding, opposite outer sides of the electric discharge tube in each cycle.

With respect to claims 10-12, Murata teaches the method of operating a gas laser oscillator as outlined in the rejection to claim 7, including the inherent production of a variety of lateral modes (see rejection to claim 1). Murata does not teach the production of specific mode profiles. It would have been obvious to one of ordinary skill in the art at the time of the invention to adjust the oscillator appropriately to generate any mode profile suited to fit the desired application. Also, it has been found to be uninventive to discover the optimal or working ranges through ordinary experimentation, i.e., the mode best suited for the selected application (see MPEP 2144.05 II A - "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)).

### ***Allowable Subject Matter***

Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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The following is a statement of reasons for the indication of allowable subject matter:

Claim 5 is believed to be allowable as magnetically influenced electrical discharge sections of a gas laser oscillator being influenced by magnetic fields of different directions with respect to each other was not found to be taught in the prior art, or an obvious combination of the prior art. Macken (US 4755999) teaches a magnetically influenced electrical discharge section including multiple sections where the discharge is occurring, but teaches the use of a single applied field, rather than the fields having different directions with respect to each other for each discharge section. For this reason, claim 5 is believed to be allowable.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 4755999, is believed to be relevant for the reasons stated above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tod T. Van Roy whose telephone number is (571)272-8447. The examiner can normally be reached on M-F.

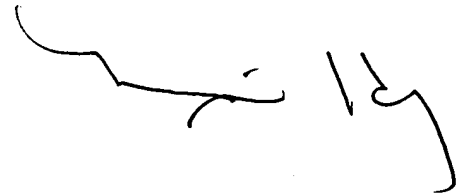
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on (571)272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TVR



MINGSUN CHAI  
PRIMARY EXAMINER